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NSF: Staggering Down Reagan's Budget Gauntlet

With the White House putting a new squeeze on spending, and Congress stalling on appropriations, budgetary chaos reigns in Washington, and nowhere is it more apparent than in the tangled financial affairs of the National Science Foundation.

Six weeks into Fiscal Year 1982, NSF is now working under the third budget that's been sent to it by the White House since January. About the only certainty is that each succeeding budget is slimmer than the previous one, but NSF's budgetminders know that nothing is really certain because Congress still has to render its final verdict on the Administration's spending proposals.

The best way to track the budget is to start with NSF's budget for last year. When all was said and done—following a presidential recission and then a reversal of part of the recission—the Foundation budget for Fiscal 1981 came out to $1.040 billion.

French Government Plans Big Boost in R&D Funds—Page 6

When Carter left office in January, the budget that he bequeathed to the incoming Administration proposed an NSF budgbet of $1.353 billion for FY 1982, which began on October 1.

In March, Reagan's budget choppers amended that to $1033 billion, with the bulk of the cuts coming from NSF's programs for education, the social and behavioral sciences, and new instruments for university laboratories. The $320-million cut rocked the Foundation, but fearing the consequences of an open break with the Administration, the Foundation's supposedly independent policy body, the National Science Board, put out a bland statement that amounted to a white flag (SGR Vol. XI, No. 8).

What the appeasers didn't realize was that even worse treatment was on the way. Inspired to seek further spending reductions to compensate for his bungled estimates of the 1982 deficit, Reagan, in September, ordered most federal agencies to cut spending 12 percent below the 1982 budgets that were announced in March. For NSF, the net result would be a 1982 budget of $909.5 million—$130 million below its budget for 1981. That's in current dollars, of course. In "real" terms, the overall budget would be down by perhaps 20 percent—a prospect so shocking that it inspired last month's emergency budget meeting at the National Academy of Sciences (SGR Vol. XI, No. 18).

That's where NSF's budget affairs stand as far as the Administration is concerned. The situation in Congress is at least as confused. House and Senate conferees agreed in August to a budget of $1.070 billion for the Foundation. The full House then accepted the conference figure, but the Senate has been dawdling. So, there is no Congressional appropriation for NSF, but if whatever comes out is above the Administration's $909.5 million figure, the White House warns that Mr. Reagan will issue a veto.

In any case, NSF Director John B. Slaughter and his staff are currently working with the Administration figure in planning for 1982, while waiting for a response from the Office of Management and Budget on their budget submissions for 1983. Since the rhythm of federal spending makes it difficult to budget for the year ahead when there's no certainty about current spending, the 1983 exercise has been an especially trying one for

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In Brief

Hans Mark, the No. 2 man at NASA, thinks space scientists are over-reacting to the US's unilateral dropout from its agreement to share the costs of the International Solar Polar Mission with the European Space Agency. Mark told the budget meeting at the National Academy of Sciences October 26 that he didn't like it either, but international agreements get broken all the time. It's just the first time it's happened to a space project, he said.

The National Institutes of Health are excluded from the new round of budget cuts that Health and Human Services Secretary Richard S. Schweiker is working up for Fiscal 1983. Schweiker, who hasn't flinched at cutting medical services for the poor, says research is too important to be cut for what amounts to a relatively small part of his Department's vast budget.

MIT Chairman Howard Johnson has committed himself to put in two days a week for the next 15 months as chairman of the National Academy of Sciences panel on Advanced Technology Competition and the Industrialized Allies (SGR Vol. XI, No. 18). That's a rare commitment for an Academy part-timer, but it's likely to become standard for NAS's big studies as newly installed President Frank Press seeks to speed up the pace at the traditionally slow-moving institution.

Another Institute Director Resigns at NIH

Senior vacancies at the National Institutes of Health continue to mount while the Reagan Administration inexplicably drags its feet on appointing a new Director for the great biomedical research enterprise.

The latest to announce his departure is David Scott, Director of the National Institute for Dental Research, who is retiring in December, after five years in the post. Scott is the fifth chief of NIH's nine Bethesda-based institutes to quit since last January, when Donald B. Tower resigned from the directorship of the Institute of Neurological and Communicative Disorders and Stroke. Tower was followed down the resignation trail by the heads of the institutes for Heart, Lung, and Blood; Arthritis, Diabetes and Digestive and Kidney Diseases; and Child Health and Human Development. Also vacant is the top post at another major component of NIH, the Division of Research Resources.

While the run of departures may not be wildly out of line with normal attrition at NIH, the replacement process—never a rapid one at that professional level—is at an absolute standstill, pending selection of a successor to Donald Fredrickson, who left the NIH directorship in July. At the time, the word from the Department of Health and Human Services (HHS) was that a replacement would be chosen by Labor Day. The reason for moving swiftly, it was said, was that recruiting for the lower-level positions couldn't proceed while the top job remained unfilled.

Since Labor Day, officials at HHS have said several times that the delay comes from nothing other than the summer hiatus—official Washington closed for August while the Reagans vacationed in California—followed by an overload of budget rewritings. On October 22, when HHS Secretary Richard Schweiker was at NIH for dedication of the Ambulatory Care Research Facility, he said that an announcement would soon be made. But, as of this writing, it hasn't.

BUDGET *(Continued from page 1)*

the Foundation.

But, though everyone recognizes that the life-expectancy of a federal budget plan is extremely short, NSF has gone through the routine of fulfilling OMB's order for three separate budget schemes: "base level," which means just enough more to keep up with inflation; the "President's mark," a hush-hush number that relates to the President's overall budget plan, and the "agency request," which is a wish-list budget that will never be approved.

The 12-percent cut that NSF is now working on may be applied selectively and at the Foundation's discretion, OMB has indicated. But, with OMB's consent, one item that won't be touched is the budget for the behavioral and social sciences, which was gutted in the March revisions—from $42 million originally proposed by Carter, down to $21 million.

Meanwhile, the strategy for the "soft sciences" to get by on less has been spelled out by NSF Director Slaughter in a policy statement, issued September 17, to implement guidelines that were prepared in June by the policymaking National Science Board. Basically, the plan calls for trying to preserve major data-collection activities, no new starts on data collection, and careful picking and choosing to maintain signs of life in other areas of the social and behavioral sciences.

If additional funds were available, Slaughter's statement says, "greater depth. . .and new initiatives. .could include:

- "1. *Data Bases.* Resumption of data collection and augmentation of major non-governmental time series; initiation of important new longitudinal and comparative data sources such as an Industrial Change and Occupational Mobility International Data Archive; and collaborative efforts to improve access to Government-generated data and enhance its scientific utility for research purposes.
- "2. *Methodological Improvements.* Research on new archeological dating techniques and support to a few essential radiocarbon laboratories; augmentation of computer capabilities dedicated to work on the linkage of brain function to cognitive activity; development of techniques and methods relevant to construction of economic and social indices, integrated indicator systems, causal modeling; reduction of nonsampling errors in surveys, and new ways to deal with problems of incomplete or missing data.
- "3. *Increased Research Activity.* Includes such topics as decision and management science, human factors affecting technological innovation and productivity; human adaptation to stress; processes of human information acquisition, storage, and retrieval; demographic trends and their implications for labor force alteration and nonmarket time use; individual and organizational decision making; processes of citizen participation in political life; models of regional development; impact of alternative regulated and deregulated conditions."

However, what to do if more money were available isn't a real policy problem in Washington today. —DSG

Senate's Revived Cancer Inquiry Fizzles Out

The investigatory blockbuster that Senator Paula Hawkins (R-Fla) has long been aiming at the National Cancer Institute landed with a dull thud last week, churning up some gruesome details about terminal chemotherapy in the billion-dollar war on cancer, but nothing of any value for improving research and treatment.

Mrs. Hawkins, obviously relishing the limelight as she chaired two days of proceedings, is not one of the Senate's intellectual heavyweights. She did recite reasonably well from a list of questions prepared by her staff. But when on her own, had a bit of difficulty navigating. At one point, following a statement by Senator Edward Kennedy (D-Mass.), Mrs. Hawkins, without humorous intent, said, "Thank you, doctor."

The Senator's Labor and Human Resources Subcommittee on Investigations and General Oversight first took on the National Cancer Institute last summer in what turned out to be a highly over-billed replay of longago revelations of NCI's neglect of dangerous side effects in several anti-cancer drugs.

NCI officials weasled that it really hadn't happened as charged but that it wouldn't happen again, and the issue disappeared from Washington's attention.

But then last month, the *Washington Post*, following a year-long investigation by two of its reporters, published a semi-hysterical account of the agonies of cancer chemotherapy. (The authors were much taken with the fact that one cancer drug is derived from a compound used in ballpoint-pen ink, leading a letter writer to invite them to ponder that antibiotics were originally manufactured from common food molds.)

The revelations failed to get to the basic problem of the American cancer research enterprise, which is that it is bogged down in orthodoxy and stuck in blind alleys. But they did put new life into Mrs. Hawkins wilted investigation. So, she put on re-run of some of the earlier allegations about NCI's sloppiness in drug trials, its failure to communicate clearly with the Food and Drug Administration, and similar matters.

On the second day of hearings, what amounted to the defense was given its opportunity, with testimony from Edward N. Brandt, Jr., the Assistant Secretary for Health; Arthur H. Hayes, the FDA Commissioner, and Vincent T. DeVita Jr., Director of NCI.

Apparently regarding the inquiry as a misguided, perhaps even aberrational pot-shot operation, they were courteous and responsive to the Chairlady, but didn't go overboard.

Still waiting to be undertaken is a serious inquiry into the strategy, organization, and pace of the National Cancer Program. That would require a lot of longterm digging, and, though the rewards might be great in terms of invigorating the program, such an inquiry wouldn't turn up the kind of razzle-dazzle items that qualify for TV's network news. Therefore, it's not likely to happen.

Oratorical Mayhem on Hill

The following excerpt is from Senator Paula Hawkins' opening statement on the second day of the inquiry she chaired last week on the National Cancer Institute:

- Either you promptly report life-threatening drug reactions or you don't;
- Either you submit to the FDA, and adequately consider, life-threatening potential, or you don't;
- Either you adequately monitor clinical trials, or you don't;
- Either you give clear warning to clinicians who misuse anti-cancer drugs, or you don't;
- Either you strictly account for drug supplies to prohibit diversion, or you don't;
- Either you obtain adequate informed consent from patients who volunteer themselves for experimental use, or you don't;
- Either you perform FDA-NCI approved clinical trials, or you rely upon your own designs;
- Either you fully cooperate with a "sister agency" charged with overseeing your program or you don't;
- Either you tell patients the truth, or you don't.

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A Who's Who of Science Attaches in Washington

SGR Vol. XI, No. 16 presented an updated roster of that valuable but underutilized information resource for the scientific community, the science counselors, attaches and other research-related personnel posted at many US embassies around the world. Their foreign counterparts at embassies in Washington are a similarly valuable resource for scientists seeking information and assistance about specific countries. The following is an updating of the Washington roster. (For salutation purposes, all are male, with one indicated exception, and the telephone area code is 202).

●

Australia	R. Brock Scientific Counsellor Embassy of Australia 1601 Massachusetts Ave. NW Washington, DC 20036	797-3259
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	L. Krocek Third Secretary (Science & Technology)	
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	R. Mansukoski Scientific Attache	
France	Jacques Bodelle Scientific Counsellor Embassy of France 2011 Eye Street NW Washington, DC 20036	659-3550
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	H. Vosswinkel Third Secretary (Scientific Section)	
Germany (Federal Republic)	Dietsmar J. Franzel Scientific Counselor Embassy of the Federal Republic of Germany 4645 Reservoir Road NW Washington, DC 20007	298-4328
	Stephen Freiherr von Welck Counsellor (Science & Technology)	
Great Britain	John K.L. Thompson Counsellor (Science & Technology) British Embassy 3100 Massachusetts Ave. NW Washington, DC 20008	462-1340 x 2249
	D.A. Rolt First Secretary (Science)	
	Mark A. Wilkins First Secretary (Technology)	
	John Gaunt Attache (Atomic Energy)	

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Science Attaches (Continued)

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Yugoslavia	Vladimir Petkovski Scientific Counsellor Embassy of the Socialist Federal Republic of Yugoslavia 2410 California St. NW Washington, DC 20008	462-6566

US, China Add Science Pacts

Three protocols for expanding scientific and technological cooperation between the US and the People's Republic of China were signed last month in Washington.

The new areas of activity and the cooperating national agencies are: Surface-water hydrology—US Geological Survey and the Bureau of Hydrology of the PRC Ministry of Water Conservancy; nuclear safety—the US Nuclear Regulatory Commission and the PRC State Scientific and Technological Commission; building construction and urban planning—the US Department of Housing and Urban Development and the State Capital Construction Commission of the PRC.

France: R&D Spending Slated for Big Boost

Paris. While government spending for research and development is in a slump in most of the western industrialized nations, France is planning a huge increase—perhaps as much as 30 percent for 1982.

The fine details of the spending plan are a bit difficult to figure out, since, in presenting the overall government R&D budget, Jean Pierre Chevenement, Minister for Research and Technology, was a bit hazy about portions beyond his direct control. The total R&D budget, which he covets, will amount to about $9.5 billion, of which $3.4 billion belongs to his ministry.

In any case, Chevenement's top priority is employment, which has lagged in recent years. To make up a job shortage that has become a chronic problem in the scientific community here, he plans to provide funds for adding 1720 scientists to the government's research facilities. In addition, salaries will be increased; the gloomy side of the picture is that funds will be in even shorter supply for operating expenses, despite assurances that that problem, too, will be given sympathetic attention.

The biggest growth area will be in data processing and related fields, which will rise by 33.4 percent, with most of the money going for basic research on softwear and systems, followed by promotion of applications. The coming influx of funds poses some serious managerial problems for the Data Processing Agency, since there is a lack of balance in France between theoretical research in data processing, which is of fairly high standard, and the development of new equipment for industry, which is rather mediocre. The Socialist government's nationalization moves have spread a paralyzing caution throughout the industry in regard to new products. But Chevenement remains optimistic. In his view, investment in research will invigorate industry and lead France out of its economic difficulties.

France's long enthusiasm for nuclear power is waning somewhat under the new government; nonetheless, R&D spending will be increased by 17.8 percent, to a total of $958 million. Six reactors will be ordered in 1982-83, which represents a reduction by one-third from the previous plan. But this action by the government was taken without the great nationwide nuclear debate that President Mitterand promised. In its place, the Parliament held a single hearing, while the ecologists expressed outrage. Solar energy wins in percentage points when it comes to measuring growth—going up by 50 percent, to a total of $55 million. But the overall sum remains so small that the Solar Energy Commission isn't expressing high hopes for the prospects for this source of energy.

As has been the case for many years, tension persists between the Ministry of Industry and the Ministry for Research and Technology. Chevenement, eager to expand his base from science into the applications of science, has set up various study groups; none of this is to the liking of the Minister for Industry, Pierre Dreyfus, who naturally feels that his territory is being invaded.

Chevenement, however, is pushing ahead with a plan to provide nearly $300 million—a 50 percent increase—to promote innovation in small business firms. The bureaucratic instrument for this is the National Agency for the Improvement of Research, which finances schemes proposed to it by industry and individuals. As of next year, the agency will be allowed to finance market studies, buy some patents, and assist in the launching of products. In addition, Chevenement has been pushing for the creation of new venture capital firms.

The emphasis made on industrial innovation has not yet been "digested" by scientists at the government research centers. Researchers at the National Center for Scientific Research (CNRS), the largest French basic research organization (23,000) people), fear that Chevenement plans to cut this enormous institution into little pieces in order to facilitate ties between research and application. So far, however, these fears appear to be exaggerated, and only relatively minor administrative changes are in the works.

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...and a Social Science Row

Research Minister Chevenement last week had on his hands what would surely be considered a scientific crisis in other lands—the resignation in protest of two of the country's top research chiefs. But the Minister took it in stride, and even remarked at a press conference that he didn't think the situation really amounted to much.

Stepping down from their posts were M. Jacques Ducuing and Charles Tibault, Director General and President, respectively, of the CNRS. Several members of the CNRS Council also resigned, with others expected to follow.

What inspired their departures was Chevenement's decision to oust the CNRS Director of Social Sciences, M. Christian Morrisson, who was appointed to the post shortly before the election that brought President Mitterand, and Chevenement, to power in June. Morrisson, it is said, tended toward a purely academic view of the social sciences, while Chevenement favors applied research aimed at current economic problems.

OECD Reports US Runaway Leader in R&D Spending

Against the background of orchestrated poverty pleas from the leaders of American research and development, it sounds incredible. But, according to the latest compilations from the Organization for Economic Cooperation and Development, annual R&D spending in the US exceeds the combined total of all R&D spending in the non-Communist world by around $10 billion.

The figures, contained in the latest issue of OECD's *Science Resources Newsletter,* also show that in that much-valued category of percentage of national wealth devoted to R&D, the US leads the list, with 2.57 percent. We also outspend everyone but Britain in the proportion of government R&D funds devoted to defense—51 percent for the US, 52 percent for the UK, with France at 37 percent and the others far, far behind.

Following are the OECD figures, which combine government and non-government R&D spending:

R&D Expenditures

Country	Year	Millions US $	Average annual increase (%) (1975 prices)	% of Gross Domestic Product
United States	1978	49 697	3.7	2.38
	1979	56 163	4.3	2.41
	1980	62 837	2.0	2.45
	1981	70 765	3.4	2.49
	1982	80 770	5.5	2.57
Japan	1978/79	20 089	7.2	1.93
	1979/80	20 063	11.6	2.04
Germany	1978	14 388	8.1	2.24
	1979	17 366	6.0	2.27
France	1978	8 348	3.7	1.77
	1979	10 225	4.6	1.79
United Kingdom	1978/79	6 994	4.1	2.20
Netherlands	1978	2 563	1.6	1.97
Canada	1978/79	2 033	8.2	0.98
	1979/80	2 134	- 1.4	0.94
	1980/81	2 341	0.7	0.95
Italy	1978	2 205	- 2.7	0.84
	1979	2 669	2.9	0.82
Switzerland	1978	2 053	6.0	2.42
	1979	2 329	3.4	2.45
Belgium	1979	1 516	4.0	1.40
Yugoslavia	1979	586	7.3	—
Norway	1978	567	3.6	1.40
	1979	632	0.6	1.37
Denmark	1979	640	2.5	0.97

In Print

American Psychological Association's Guide to Research Support, described as "the only comprehensive handbook of federal funding to assist researchers in the psychological, cognitive, and behavioral sciences." (360 pages, $16 for APA members; $20 for nonmembers; available from: Order Department, American Psychological Association, 1200 17th St. NW., Washington, DC 20036.)

Better Accountability Procedures Needed in NSF and NIH Research Grant Systems, report by the General Accounting Office, based on a study of 75 NSF and NIH basic research grants at six major universities; concludes that NIH is stricter than NSF in appraising applications, but that both granting agencies ought to tighten up their review procedures. (86 pages, available without charge from: US General Accounting Office, Document Handling and Information Services Facility, PO Box 6015, Gaithersburg, Md. 20760; specify Document PAD-81-29.)

Trends in Science and Engineering Degrees, 1950 through 1980, four-page summary prepared by NSF, says total number of science and engineering degrees has dropped below the point reached in the mid-70s. Since 1976, bachelor engineering degrees have zoomed by 53 percent, to a total of 60,000 last year; math is down, but computer sciences are up, while physics has dropped by 39 percent since 1969. (NSF Document 891-320, available without charge from: NSF, Division of Science Resources Studies, 1800 G St. Nw, Washington, DC 20550.)

FRANCE *(Continued from page 6)*

Meanwhile, the commission that the new government established to look into the status of research in France has issued a strongly negative report, charging that the previous government promoted discord between industrial and publicly financed research.

The mathematician Laurent Schwartz, who headed the inquiry, spoke of "a time of scorn" for researchers by politicians when describing the last 10 years. With regard to the whole of French society, he deplored the "scorn for technique." And, astonishingly so for an elitist and fundamentalist mathematician, he denounced "the secondary education which favors and encourages abstract and mathematical thinking rather than pragmatic and experimental education." He observed that while French research is only 5 to 7 percent of the total world effort, French scientific influence is quite appreciable in several fields. But he also pointed out that "this situation remains very unequal and is being threatened." To counter that, the government of President Mitterand is making a solid effort with its 1982 budget.—FS

In Quotes: False Hopes for Nuclear Power

The following excerpt is from a speech, "The New Policy for Nuclear Power," by Victor Gilinsky, a member of the Nuclear Regulatory Commission, October 27 in Washington to the World Nuclear Fuel Market's International Conference on Nuclear Energy:

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My own view is that there is little behind the [Administration's] rhetoric...to reverse the current decline of nuclear power. Some useful adjustments can be made in the regulatory setup. But it is an illusion to think these can be the source of a revival of nuclear power. The only stage at which any licensing holdup is likely to occur is at the beginning, when utilities seek construction permits for new plants. But "streamlining" these initial licensing procedures will be no more than an academic exercise if there are no new plants. Despite the ritual pronouncements of utility executives, orders for new plants are held back less by the regulators than by the Invisible Hand of Adam Smith.

And despite vocal complaints, no plant ready to go into operation is being held up by NRC hearings. It turns out that plants thought to have been held up by licensing procedures were stalled instead by equipment or other safety problems.

Decisions to abandon new plant construction are not governed by the delays associated with the regulatory process, and every utility company knows this. These decisions have been impelled, rather, by the interaction of energy supply and demand. Construction problems, in some cases new safety requirements, and financing difficulties have driven up costs. At the same time the need for these plants has been diminishing steadily over the past four years. Electrical demand growth was down to 1.7 percent last year. Eleven plants have been cancelled since the election last November....As of now 72 plants are licensed for commercial operation. They represent a total electric generating capacity of about 55,000 megawatts. This total includes two plants which have not yet reached full power, and TMI-1, which is not in operation. Diablo Canyon 1 is licensed for low power but is on hold until its recently discovered seismic design problems are resolved.

In addition, there are 77 large plants (roughly 1000 megawatts each) in various stages of completion, some almost finished, others hardly begun. This number does not include 12 plants which were under construction and which have been cancelled since 1975.

On the basis of the way things look now, I expect that at least another twenty of the 77 plants under construction will also be cancelled. In addition not more than one or two of the ten plants under construction permit review have much of a chance to see the light of day (for economic reasons, let me add). What this adds up to is that of the plants in the review and construction pipeline no more than 50-odd plants (about 60,000 megawatts) now look as if they are headed for completion and operation....

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